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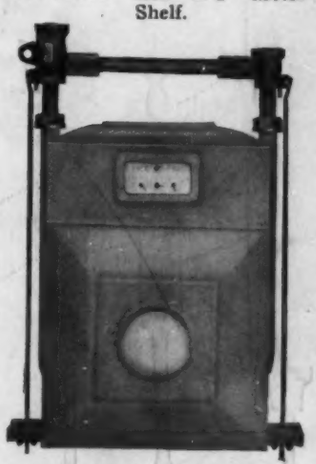

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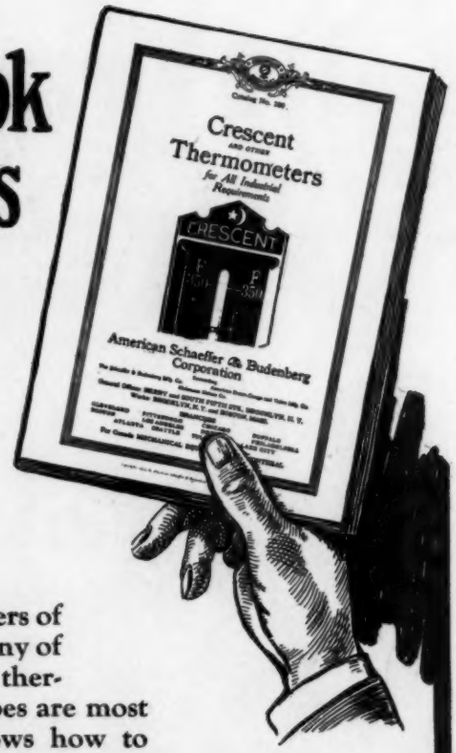

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ISMAR GINSBERG, Editor

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The West Greets the East

Mid-year conference a combination of important business and splendid hospitality

(By Special Representative)

THE gas men from the East arrived in San Francisco January 27, to attend the Mid-Winter Conference of the Executive Board and Advisory Council, held at the Palace Hotel, January 29 and 30. Thanks to Mr. K. R. Boyes, of the American Gas Association, New York, who had charge of all the arrangements, the trip was delightful and everything possible was done for the convenience of those making it.

The train was met at Sacramento, Calif., by Mr. R. S. Fuller, of the Pacific Gas and Electric Company, and Mr. C. Johnstone, secretary of the Pacific Coast Gas Association. Each member of the party was handed a card with the name and number of hotel room to which he had been assigned, and his baggage was checked. On arrival at the wharf in San Francisco, taxis were waiting and a short trip around the city was made on the way to the hotel. On reaching the hotel, each handed his card to the boys and, without having to register, was shown to his room and there found his baggage waiting. This was a courtesy very much appreciated by every one.

In addition to all of the above, every one in the party was presented with cards extending the privileges of the Olympic Club and the Bohemian Club for a period of two weeks. The privileges to the Olympic Club were extended through Mr. Henry Bostwick and those of the Bohemian Club through Mr. R. Heimann.

Entertainment Features

The entertainment features arranged by the Coast gas men, which had been kept under cover, were announced by Messrs. Fuller and Johnstone after boarding the train at Sacramento, and were as follows:

WEDNESDAY, JANUARY 28

Sightseeing—Two optional motor trips leaving hotel at 9:45 a. m., and returning about 5 p. m. Luncheon served en route. (A) Oakland, Berkeley and University of California. (B) San Jose and Leland Stanford University.

THURSDAY, JANUARY 29

For Ladies—Bridge luncheon, Tait's-at-the-Beach. Leave Palace at noon.

Chinatown—Guided trip through Chinatown, 8 p. m.

FRIDAY, JANUARY 30

For Ladies—Motor trip to Twin Peaks, tea at Fairmont Hotel. Start 1:30 p. m.

Dinner Dance—Palace Hotel, 7 p. m., arranged for by the Gas Appliance Society of California.

SATURDAY, JANUARY 31

Side Trip—Week-end at Del Monte Hotel.

All of these arrangements for the pleasure and convenience of the visiting gas men were greatly appreciated by every one and they will return to their homes with the firm conviction that the hospitality of the West Coast people, about which we have heard a great deal, has not been over-estimated.

Opening Meeting

The conference was opened Thursday morning. Mr. H. C. Abell, president of the American Gas Association, outlined the various features of the program to be discussed. He stated that there was a larger number of Eastern gas men at this meeting than attended the last conference. Mr. Abell's paper was published in the January 31st issue.

Mr. E. L. Hall, president of the Pacific Gas Association, made a short address, welcoming the guests, as also did Mr. F. E. Leach, vice-president of the Pacific Gas & Electric Company.

Henry L. Doherty Opens Discussion

Mr. Henry L. Doherty, of New York, opened the discussion on "Gas Making Methods and Materials." Mr. Doherty is an authority on oil as well as gas, and presented much valuable information to the conference. Others who ably discussed this subject were Mr. H. L. Masser, Los Angeles, Mr. W. S. Yard, San Francisco, and Mr. G. E. Whitwell, Tacoma.

The discussion on "Rates, Rate Schedules and Charges for Gas" was led by Mr. C. S. Reade, New York. His papers appear in this issue.

Public Relations

The subject of "Public Relations" was discussed by Mr. B. J. Mullaney, of Chicago, and Mr. A. B. Day, of Los Angeles. Mr. Mullaney's paper appeared in the January 31st issue. Mr. Day's paper appears in this issue. Mr. Ready, chief engineer of the Public Service Commission of California, stated that the Commission was much interested in this question, and outlined the various ways the Commission had followed and assisted in this work of the public utility companies.

Coming under this head was a report read by Mr. W. Griffen Gribbel, Philadelphia, Pa., on educational work being accomplished through the educational institutions of the country. Mr. J. P. Hanlan, Newark, N. J., also presented a paper on home service. Another paper in this group was one on house piping by Mr. J. E. Davis, Chicago.

Geographic Division Report

Mr. L. R. Dutton, Jenkinstown, Pa., presented the following report:

To the Executive Board of the American Gas Association:

Your committee on the Organization of Geographic Divisions submits for your consideration the following report:

Since the Conference which took place in Atlantic City in October, 1924, between committees of the Pacific Coast Gas Association and the American Gas Association, your committee has given careful consideration to the special conditions surrounding the gas industry on the Pacific Coast and has carefully weighed the difficulties inherent in the distance involved and in the special problems of the western part of the country. We have now reached the point where we recommend that this board authorize the organization of the Pacific Coast Gas Association as a geographic division of the American Gas Association.

Working Agreement With Pacific Coast

Such an arrangement would depend upon an agreement between the two organizations. We are convinced that a working arrangement can be made which will at the same time enlarge the activities of the Pacific Coast Gas Association and give it a more vital place in the national program of the American Gas Association, and afford the national body most valuable assistance in the utilization of the knowledge, experience, and vision of the gas men on the Pacific Coast.

We, therefore, suggest that the Executive Board authorize this committee to continue negotiations with the Pacific Coast Gas Association for the authorization of a Geographic Division, including the terms of the agreement, the establishment of proper budget provisions, the assignment of duties and activities, the collection and division of dues and other modifications found necessary, and to report at a future meeting of the Executive Board.

It is believed that if this authority is given, your committee can proceed in discussion with the proper authorities of the Pacific Coast Gas Association and arrive at a mutual understanding, which may make it possible for a final report and action by or before the end of the present fiscal years of the two associations.

Gas Men from the East Who Went to California

Respectfully submitted,
L. R. Dutton, Chairman.
E. L. Hall.
Oscar H. Fogg.
Committee on Geographic Divisions, American Gas Association.

Consumers' Meters

A paper on "Standardization of Consumers' Meters" was read by Mr. Donald McDonald of New York.

Arrangements were made for the selection of subjects to be presented at the next meeting of the Conference.

A rising vote of thanks was given the Coast gas men for their splendid hospitality.

Contact With Students

What has been accomplished and a plan for future work

W. Grffen Gribbel

Chairman of Committee on Co-operation with Educational Institutions

THE A. G. A. Committee on Co-operation with Educational Institutions at the outset of its program in 1922 to introduce lectures on the gas industry before student bodies of the universities and colleges of the country had two purposes in mind. First, to interest college men in choosing the gas business as their vocation. Second, to instill in their minds a general knowledge of this industry, its manner of doing business, and its problems to the end that, should the future find them charged with authority, these early impressions of the stability and earnestness of our industry would qualify their judgments.

In the beginning it was necessary for the committee to sell its program to gas companies in order to secure their co-operation in pushing this work. However, it is highly gratifying to report that we now have merely to hint that co-operation is wanted in a particular situation and it is promptly and willingly given. This is illustrated in a recent occurrence. Nine letters were sent out to companies in cities wherein educational institutions not already reached by the committee were located. Eight letters of acknowledgment have been received reporting that definite steps were being taken to follow the suggestions offered. In one instance dates for a series of eight lectures in one of the country's foremost technical schools were secured. This is typical of the generous support the gas companies are now rendering the committee in its work.

Success Has Been Attained

The anticipated difficulty in securing faculty approval of the committee's plan did not materialize. The opposite condition soon prevailed and we are now not only being given assignments when we request them, but faculties are coming direct to the committee for repetition of lectures and additional lectures. Such institutions as University of Pennsylvania, University of Michigan, Swarthmore College, Brown University, Worcester Polytechnic Institute, Clark University, Pennsylvania State College,

To Attend Mid-Year Conference of the American Gas Association

Harvard University, Massachusetts Institute of Technology, and others have expressed themselves in favor of having lectures repeated. In some cases we have been asked to make them annual fixtures. The faculties of these institutions have found that a lecturer fresh from "the smoke of battle" has a message not only of interest to the students but of very positive value to them.

Many Institutions Offer Courses

Today the list of educational institutions offering courses of particular interest to the young man desiring to enter the public utility field is becoming surprisingly lengthy. Our committee has been consulted in the establishment of such courses. We are at the present time working with the Graduate School of Business, Harvard University, and supplying information for the establishment of a course on utility management, and also with the Massachusetts Institute of Technology on what promises to be a very extensive course covering gas and fuel engineering.

In the past few years, committees on public utility information have been organized in many states. These committees employ full-time directors and staffs, and have been extremely useful in furnishing accurate and dependable information to the press. In instances these state committees are following up and extending the efforts of this committee, and in some cases have gone beyond anything the committee could hope to do with its present volunteer organization.

A Suggestion for Re-allocation of Committee's Work

The pioneering and missionary work that the committee has done, on a volunteer basis, is now becoming inadequate to take care of the demands which are assuming such serious volume. May I suggest for your consideration that this contact work with the schools and colleges of any definite territorial group be turned over to the state committee, should one exist, if this committee has demonstrated its willingness and ability to take on the work. This plan would set free the national committee to pursue its evangelistic work on a part time basis in territories where as yet the ground is unbroken. The work of contact with schools and colleges must be assumed definitely by a bureau functioning smoothly every day, year in and year out, and at any time in daylight hours. Otherwise, where progress has been made in stimulating the interest of faculties, we run the risk of unintentionally chilling their enthusiasm by a lack of ability to give them what they may consider full and instant action at any time. We cannot afford to blow hot and blow cold. We must present a continuous and even front.

Geography and distance play a large part in this educational contact work, and where these distances can be telescoped by taking advantage of the existence of a local bureau, such a step is certainly the proper one to take.

It may transpire that after the colleges and universities have made the study of the engineering and economic phases of public utility management, a permanent part of the curriculum, that we will not be called upon, except in a consulting capacity, but until that time arrives we must hope for a constantly increasing demand for just what this committee has to offer. Perhaps it is well to consider even at this time the eventual establishment of a bureau within association ranks which can offer a never-failing source of supply under the direction of a trained director familiar with the constantly changing complexion of the industry.

Sales of Gas Last Year Go Over 400 Billion Mark

The manufactured gas companies of the United States sold 405 billion cubic feet of gas in 1924, according to figures just made public by the American Gas Association. This is an increase of 20 billion cubic feet over 1923. In the last six years sales of gas have jumped 100 billion cubic feet.

Rapid expansion of service in both domestic and industrial fields is held responsible for the present day record-breaking demand for gas fuel, the association reports. New customers connected to the lines of gas companies last year were 440,000, making a total of 10,240,000 gas customers as of December 31, 1924. Total population served by gas, figuring five persons to a meter, is in the neighborhood of 52,000,000.

Sales of appliances for the year were 800,000 ranges, 450,000 water heaters and 500,000 space heaters. Total gas company appliance sales were about $50,000,000. All figures represent increases over 1923.

The association announced that increased use of gas in industrial heating processes was progressing at an unprecedented rate, the sales in this one field alone during the last ten years showing a growth of 1,000 per cent. As an instance of the large volume demand existing in the industrial field, the association says that one large biscuit company connected to the lines of a certain gas company uses as much gas in a month as 500 average homes. Other large volume business of an attractive character is in the house heating field, where installations are now being made at the rate of 10,000 a year. Five hundred houses in Denver are now being heated by gas.

Business outlook for 1925 is better than it has been in several years, says the association, with the new year promising an enormous demand for service from industrial establishments and a steady increase in the household load.

"House Piping"

Getting more gas outlets the problem for the gas industry

J. E. Davies

Peoples Gas Light and Coke Co., Chicago

THE defeat of Napoleon at Waterloo, historians assure us, was due entirely to an extremely exaggerated ego, coupled with absolute neglect of an appreciation for the efforts and the ingenuity of his enemies. That, of course, is ancient history. Bringing the same condition down to a time with which we are all familiar, you will remember that fateful first battle of Ypres in 1916, when the Allies were taken absolutely by surprise, with a gas attack, and it was only after the exertion of a tremendous amount of energy and resourcefulness, coupled with an appalling casualty, that they were able to stem the tide of the German advance. Here again is the result of an underestimation of a fact that past customs and old methods could at any time be radically changed, which change could be disastrous.

I begin this general discussion on house-piping with impressions of conditions that lead me to believe that we, in the gas industry, are in about the same relative state of mind as was Napoleon at Waterloo and the Allies at Ypres. Thus, basking in the results of our past accomplishments, we sit smugly in our offices, ridiculing the efforts of our fellows in their endeavor to substitute other fuels, believing so thoroughly in our own impregnable position, fortified by past performance as regards our service to the public at large, that we have allowed our vision and our initiative to atrophy to that extent where we suddenly discover that we must resort to strategy of the most intensive nature at the expense of an enormous amount of energy, time and expense, in order to regain some of the ground that our own folly lost for us.

More Gas Openings

As I stated last fall before the Commercial Section of the American Gas Association, our efforts to secure more gas openings and to perfect our present method of piping have been more or less unsatisfactory because we have failed to notice that society is demanding different conditions under which to live today than it did even a decade ago. In an effort to alleviate the standard of living, the steam-heated one and two-room apartment, with its built-in furniture and other ultra-modern appurtenances, has enjoyed a very popular demand. This has resulted in extravagant building speculation, embodying cheap construction, and the elimination of all expense that does not contribute to the visual appeal of the building.

In other words, these buildings, as well as business places, are erected for a rapid turn-over, consequently, costs of construction are cut wherever possible and, unfortunately, adequate gas services to the buildings, as well as insufficient number of openings and scanty piping, have contributed materially to our inability to increase the consumption per meter.

No Gas in Buildings

Indeed, it is very common to see a building, modern in every respect, have no provision for gas in fireplaces, and only possibly a small one-half inch riser to take care of the diminutive gas range in the kitchenette. In such cases, it is absolutely impossible to place additional gas equipment on the line without first re-piping practically the entire structure. Gentlemen, unless we collectively and individually combat this condition, we shall, in a very short time, find the damage done to our business almost irreparable.

J. E. Davies

I do not wish at this point to be at all pessimistic over our future, but I do thoroughly believe that it is imperative that we give some consideration to this subject, and it seems to me that the only way to successfully fight this condition is through more active co-operation with the architect, the builder and the owner.

Selling the Building Trade

I am convinced that if we are to successfully and intelligently sell the architects, the building trades and home owners with our service, and with suggestions for adequately supplying this service, that we of the gas industry must be particularly careful that the disciples we choose for this work should radiate the very acme of intelligence, tact and optimism. The men engaged in this work should be the best you can get. They should have a comprehensive knowledge of gas business as applied to piping, meter locations, and they should at the same time be men of experience who are capable of giving correct information as to the cost of main extensions, service charges, etc., and further, in an advisory capacity, they should be able to completely lay out a plan of piping conditions in a building, advising where meters should be placed, should know various appliances and their operating characteristics and performance, and be able to suggest the particular appliance for a certain place. In short, they should be of assistance to the architect and the builder in all matters that pertain to the gas company business. Their tact should secure for them the attention of the public, especially those who, through misinformation or ignorance, seem arbitrary, but who will, upon intelligent presentation, agree that the representative of the gas company is really telling them a great truth.

Accurate Data Required

As an added step towards recognition by the public and the building trades to the service we are offering, it is extremely desirable to leave something tangible in the form of data of some sort or another which will be broad enough in its value to be kept by the architect or the builder for his reference. Who of you who are engineers do not welcome an advertising pamphlet which contains valuable every-day data ready for use. The electrical man, through his various national organizations, coupled with extensive educational propaganda sent out by large electrical manufacturing interests, has flooded the architects' and builders' files with their material. This is bound to have its effect. If the architect or builder, for example, wishes to look up data regarding fireplace heaters, he goes to his technical file on that subject and he finds there, filed in a very convenient form, possibly according to some decimal system, a wealth of material just suited for his purpose, but, gentlemen, it happens to be electrical data.

We have taken a long while to appreciate the value of such data, but I am very happy to say that, through the efforts of a wide-awake Architects and Builders Service Section in the Commercial Section of the American Gas Association, we are able to supply the architect, the builder, and even the contractor or owner, with data neatly gotten up and easily accessible, which, as I am informed, is being met with great approval. This folder which I have before me has index cards, indicating spaces for House Heating, Water Heating, Kitchen Equipment, Laundry Equipment, Lighting, Meters and Piping, and miscellaneous data. These folders are being ordered by individual gas companies and distributed to architects and builders in their respective territories. I see in this a splendid opportunity to increase our sales force with the expenditure of a relatively small amount of capital. The efficacy of this innovation, gentlemen, rests entirely on your contribution and your interest taken in this service.

In this discussion on house piping, which can be termed the artery determining the magnitude of our business, I wish to suggest several topics for your consideration.

Master Meters

First of all, the question of so-called master meters, their value to the gas company and to the owners, their relation to the gas fitting profession outside of the gas company, methods of completing house piping from master meters, the question of individual shut-offs at appliances where such master meters are used, and suggestions as to methods for expanding their use is elementally important.

Secondly, there is the question of the use of gas in metropolitan districts where coal and other fuels now used are such a contributing factor to the smoke nuisance. At the present time in Chicago there is a veritable crusade against this so-called "smoke nuisance," and I believe that there could be no better incentive for us than to get busy at the present time. I do not believe that we should allow ourselves to be forced into coming into a very desirable field. As topics for discussion under this general head, let me mention individual apartment heating with gas-fired appliances, automatic in control and operation, the use of individual steam plants for restaurants and cafes, clubs, etc., and also equipment for providing the service water for such institutions, the use of properly designed hot blast heating systems for factories using gas as a fuel and the introduction of all gas appliances wherever fuel is used for any purpose whatsoever. Whether we secure such business or not, depends entirely on adequate house piping for sufficient remote supply.

House Piping for Office Buildings, Etc.

The next point which can be discussed is house piping for office buildings which are tenanted by doctors, dentists, barber shops, beauty parlors, small manufacturing businesses, etc., where there are small amounts of gas used. There is no telling what the future shall bring in the regard of activities in such buildings, so it appears to me that we should take issue with the architect or builder when he says, "Oh, they are only going to use a few Bunsen burners, so why pipe the building with larger risers than are necessary, or why supply additional openings?"

(Continued on page 132)

Cost Analysis and Rate Making

How accurate information yields correct rate structure

L. R. Lefferson

Rate Department, Electric Bond and Share Co.

EVERY year thousands of dollars are spent by the gas companies through elaborate engineering forces and experts in the attempt to reduce the production cost of its product by a few cents or a fraction of a cent per thousand feet, but relatively nothing is expended to ascertain the best method of marketing it. The net to the company is the difference between the revenue received and the cost of the product. That fraction of a cent added to the gross is equally as important as the reduction in operating expenses.

How would the department store fare as a business if it used all of its talent in the purchasing of goods and gave as little thought as we have done in the past to the selling end of its business? It would fail. The gas industry has been kept alive because it has been a public necessity. Gas utilities usually hold a natural monopoly in their respective territories, but only in the sense that they are the only gas utility in the particular locality. There is competition for all gas companies in the way of other fuels and electricity, and increasingly so as time goes on. If they are to hold their proper place, more attention must be given to the details of the costs entering into the service from which proper rate forms for the marketing of its commodity must be evolved.

Gas Rates Developed With No Real Knowledge of Costs

Most of the gas rates in effect today throughout the United States have been developed from no real knowledge of the costs. The early rates were made when detailed costs were unknown. In developing the more recent rates, we have permitted one of the lesser elements of rate making, namely, precedence, to predominate. If we are to keep in stride with our competitors, more attention must be given to costs of the particular classes of business to be served, value of service, competition and attractiveness of rate form. The first and most important step in this procedure is a detailed cost analysis.

A knowledge of the costs of rendering service enables the utility to ascertain what classes of business are bearing their just share of the costs. It shows the rate of return from each class of consumers under existing rate schedules and conditions of service. The cost analysis gives a picture of the cost curve for each class of consumers and points the way to the ideal rate form. The cost curve used in conjunction with a zone record of bills rendered gives a knowledge of the number of consumers being served at a rate below cost and how many consumers are paying more than their just share. This knowledge may be used to advantage in two ways, both of which are practical, but one in a much lesser degree than the other. First, through an intimate and detailed knowledge of the amounts involved in the various items of cost, the utility should be enabled, in some instances, to alter its operating methods in some details to more closely fit in with the conditions of use. Second, and of major importance, the combination of the rate cost curve and the zone record points the way to the form of rate adjustment which will more nearly accomplish the desired results with a minimum of disturbance among the consumers.

Substitution of Rate Structure

Due to several contributing factors, principally precedence and competition from other fuels, it is recognized that in many instances it is impracticable or inexpedient at the present time to substitute for present rates new rates of such a nature that each class of business will net the utility a rate of return equivalent to the average over-all rate of return. Rate cost analyses, made from time to time, will show the rate of return of each class of business and enable the utility to actively solicit the remunerative business and evade, as much as possible, the unremunerative. The amount and kind of business, however, is not entirely within the control of the utility, but frequent cost analyses enable the utility to foresee a reduction in the average over-all rates of return through the addition of too much unremunerative business and to take such corrective measures as may be necessary and consequently maintain a balanced rate structure.

Balanced Rate Structure Essential

In this age, where the utilities are operated in most cases under the supervision of state public service commissions or other bodies having jurisdiction, a balanced rate structure, together with properly designed rates, is essential. These two factors minimize the fluctuations from year to year of the average rate of return. Commissions are quick to pounce upon excess earning figures of the utility and force rate reductions. Deficits in earnings are ignored unless brought to the attention of the commission by the utility. The utility must suffer its deficits in silence or spend considerable money in expensive rate hearings.

The more nearly rates are designed to conform to the costs, the more nearly the rate of return will remain constant. This can only be accomplished through a detailed cost analysis to ascertain the customer, demand and commodity components. To arrive at a more salable rate, and this feature is gov-

erned largely at the present time by precedent in rate forms, the practice is sometimes followed of allocating a portion of the customer and demand components to the commodity component of cost. The more of the fixed costs that are spread over the commodity rates, the greater becomes the gamble as to net earnings, for the net earnings would then depend principally upon the quantity of gas sold. Moreover, the higher the commodity costs are figured in the cost analysis the more difficult it becomes to design a rate to adequately compete with other fuels in the case of the industrial consumer operating at high load factors. Service to the large industrial consumer demands a relatively low rate, but this rate should never be so low as to put a burden on the balance of the consumers. The only way to be assured that the rate is not below cost is through the medium of the detailed cost analysis.

Proof of Reasonableness of Rates

The utility is frequently called upon to prove to the regulatory commission that a certain rate as applied to one class of consumers is not a burden on some other class or classes. The detailed rate cost analysis properly presented by the utility inspires confidence in that it clearly shows to the commission that the utility management has studied the problem in a scientific manner. Through the cost analysis, the utility is able to clearly demonstrate not only what are the costs of service, but, more important, how the costs are made up. It brings out indisputable facts and will conclusively prove the case, whereas oftentimes the old average cost theory or rule-of-thumb methods leave much room for doubt and make easier and more defensible a decision predicated upon the politics rather than the equities of the case.

Results of a Cost Analysis

In line with the thoughts hereinbefore expressed, a detailed investigation involving a cost analysis recently conducted for a large gas utility brought out some very startling facts. This utility had but one rate for all gas sold and this rate was a step rate, with a long series of steps starting with $1.30 net per month per thousand cu. ft. for quantities used up to 10,000 cu. ft., and ending with a rate of $0.806 per thousand cu. ft. for monthly consumptions of 600,100 cu. ft. and over. This rate carried no minimum charge of any kind.

Of a total of 565,713 monthly bills rendered during a twelve months period, not less than 395,452, or 70 per cent, were for an amount less than the cost of service. In other words, the deficit from the bills of these consumers had to be made up through the other 170,261 bills, which represented some 14,000 consumers, or only 30 per cent of the total. The total deficits from the 395,452 bills amounted to some $409,000 per year, which means that the other 14,000 consumers paid each year in addition to their just portion of the costs an average of about $29 each.

With this rate in effect, and assuming an average diversified demand of only 17 cu. ft. per consumer per hour, all bills for approximately 3,000 cu. ft. or less are rendered for less than cost. On every bill for 500 cu. ft. the company suffers a deficit of $1.84; for every bill of 1,000 cu. ft., a deficit of $1.41; and for every bill of 2,000 cu. ft., a deficit of $0.88. During the twelve months period studied 32,856 bills were for 500 cu. ft. or less, 57,525 bills were for from 600 cu. ft. to 1,000 cu. ft., and 161,754 bills were for from 1,100 to 2,000 cu. ft.

The above-mentioned figures are arrived at through a cost analysis in which 33.3 per cent of the bare bones commodity cost was added to the commodity component and making an equivalent subtraction from the customer and demand components. On this basis of cost allocation, the unit components were found to be as follows:

Customer component, per year.....	$12.14
Demand component, per foot of hourly maximum demand per year.....	0.82
Commodity component, per M. cu. ft. of consumption	0.65

As pointed out heretofore, at the present stage of rate making at least, it is expedient to allocate a portion of the customer and demand components to the commodity component, but as a matter of present time theoretical interest the following cost components are given as the bare bones or true costs toward which should be the ultimate aim in rate making for this property:

Customer component, per year.....	$14.22
Demand component, per foot of hourly maximum demand per year.....	1.06
Commodity component, per M. cu. ft. of consumption	0.49

The Two New Rate Schedules

Two rates, designed not strictly in accordance with cost, but designed to follow more nearly the trend of the cost curve, were applied to the business for twelve months, and these two rates, cheaper in appearance than the present rate, showed an estimated annual increase in gross revenue to the amount of $150,000. These rates were as follows:

Retail Service Rate:

$1.00 net each month for the first 300 cu. ft., or fraction, used per month.
1.25 net per M. cu. ft. for the next 2,700 cu. ft. used per month.
1.10 net per M. cu. ft. for the next 27,000 cu. ft. used per month.
1.00 net per M. cu. ft. for the excess of the above stated amounts.

Wholesale Service Rate:

$35.00 net each month for the first 30 M. cu. ft., or fraction, used per month.
1.00 net per M. cu. ft. for the next 70 M. cu. ft. used per month.
.80 net per M. cu. ft. for the next 100 M. cu. ft. used per month.
.70 net per M. cu. ft. for the excess of the above stated amounts.

As The Journal Views It

MID-WINTER CONFERENCE ISSUE

Due to the interest of the entire gas industry in the Mid-Winter Conference of the Executive Board and Advisory Council of the American Gas Association, held in San Francisco, Calif., January 29 and 30, the American Gas Journal is devoting practically this entire issue to a report of the Conference and presenting a majority of the papers read there.

It is impossible to include the discussions, for each subject presented as the transcript of the stenographers' notes could not be secured in time.

One or two very important addresses have also been omitted for the same reason, but will appear in a later issue.

THE PACIFIC CONFERENCE

There was held last week, on the Pacific Coast, in the city of San Francisco, a conference of gas men which was unique in the history of the American gas industry. Gas men from the East, outstanding figures in the gas industry this side of the Rocky Mountains, met with gas men of the Pacific Coast for common discussion of the various problems of the gas industry.

Gas conventions have been held in different parts of the country, at which there were present representatives from all over the country. Pacific Coast gas men have traveled to the East many times to be present at the annual conventions of the American Gas Association. But there has seldom been a meeting of the character which took place in San Francisco, and at which special effort was made to show the unity of interest that exists in the gas industry throughout these United States.

The discussions which were carried on at this meeting, being led by leaders in the industry, are of prime importance to the entire gas fraternity. Reports from these meetings have indicated that the mid-year conference of the executives of the American Gas Association with the gas men of the Pacific Coast was a most successful one. The matters that were discussed were those in which gas men have most vital interest, and the discussions did much to clear up any differences that might have existed regarding these significant problems. There can be no doubt but that the results from such a meeting will be of great import to the gas industry at large.

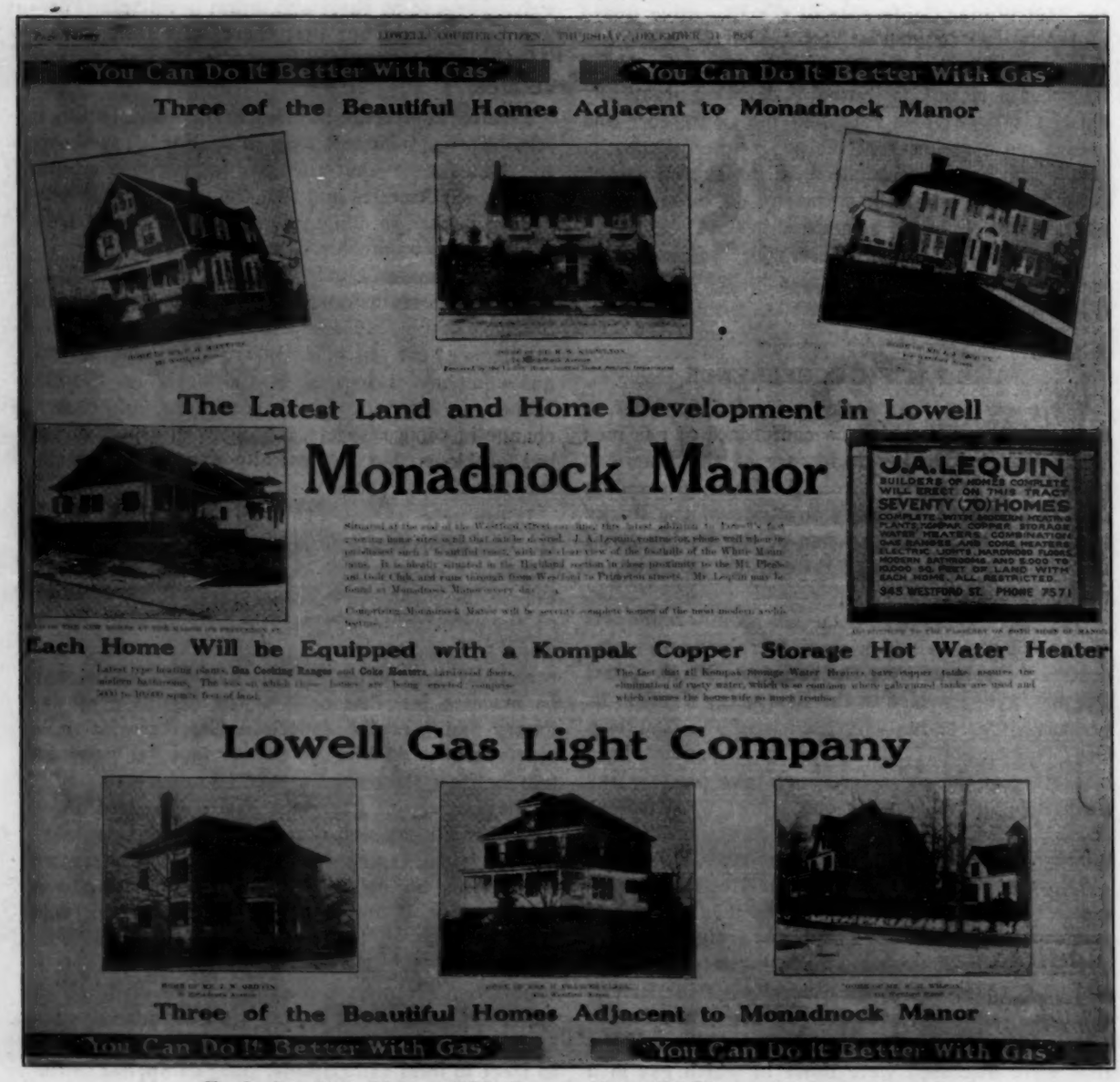
But this conference has had, in our minds, a larger and deeper significance than this. For it has shown to the country that the gas industry is a unit throughout America and that the gas men who pursue their work so many thousand miles distant from the East are as much a part of the national gas industry and are as much interested in gas affairs as those in the states comprising the Eastern section of the country. It has also been shown that the problems of the gas industry are alike, whether the gas company is located in California or Florida, Maine or Oregon. Local conditions, of course, change in some respects, the outward aspect of the gas problems, but intrinsically and fundamentally they remain the same.

It can only be hoped that this conference will be the first of an entire series to follow. It is unquestionably a long way to travel from the Atlantic to the Pacific coast, but it is necessary for the gas men of the country to get together frequently and to discuss their problems, so that each company and each individual, no matter where he may reside, may be made to feel that he is a part of this great industry and that the American Gas Association is representative of him, no matter how far away he may be from the official seat of its endeavors.

The conference certainly has emphasized most clearly to all gas men that the American Gas Association is an association which covers the entire country, and not merely the East. It may have been in the minds of our Pacific brothers that this was otherwise, but we believe that this feeling has now been dispelled. The gas industry must present a solid front. It must not appear to be made up of individual parts, each having its own special aims and aspirations. Unquestionably, gas men do well to meet in local associations, and this applies to the

gas men of the Pacific Coast as well as to those in other parts of the country. But national problems of the gas industry are best taken care of by a national organization, which is the American Gas Association, and of which the Association on the Pacific Coast is as much a part as the other State Associations.

There is no criticism to find with our Pacific Coast friends. They may have perhaps felt that they were somewhat separated from the gas industry of the rest of the country. But this is not so. The barrier has been overcome. While there still may be the physical separation between these two sections of our country offered by the high peaks of the Rockies, nevertheless, there must be evident now—if there was any doubt of it heretofore—that there is no more separation between the gas men of the East and the gas men of the Coast, that they are both intrinsic and important parts of the combined national industry as represented in the American Gas Association, that there cannot be any doubt that any political separation exists between the States west of the Rockies and those east in the American Union.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What Are Public Relations

A square deal between utility and public

A. B. Day

Vice-President and General Manager, Los Angeles Gas and Electric Corporation, Los Angeles, Calif.

BROADLY speaking, a public utility has no other kind of relations. Employee relations might seem to be of a more intimate, family-like nature, but public utility employees are a part of the public as well, both because they are consumers of the utility's product and also because many of them do not permanently remain employees, but drift about from one employment to another.

Volumes have been written and spoken about public relations, but it seems to me that there are just two things to be kept in mind in the whole problem: first, give the public a square deal, and, second, see that the public knows it is receiving a square deal. All the rest is detail.

"A Square Deal"

There may be some difference of opinion as to just what is included in the term "a square deal." All will agree that service of standard quality for a reasonable price, courteously rendered, is the foundation of a square deal, insofar as the utility is concerned. Some will add frills of extra service and extra attention to consumers, the cost of which others regard as an unwarranted charge upon all the utility's patrons in order to give a few of them a pat on the back.

The questions of standard service and reasonable rates are comparatively easy of solution. The executive's difficult job and the weak link in the public relations chain is the modest item of having the service rendered and the charges made and collected in such a way as to win the applause of those who pay the bills.

What Is Expected from the Employees

Every public utility expects its employees to be courteous, just as every chief of police and every ice route foreman expects his subordinates to be gentlemanly in their public contacts. Unfortunately, there is no way to insure that these expectations will be realized. The consumer may be unreasonable and grouchy; and it is a good bit to expect of an employee that he will always have the poise, the self-control and cultural attainments necessary to "make a friend" out of a person who is in a mood to avenge his real or imagined wrongs. The old saw is very true that "it takes two to make a quarrel"; but it is also true that generally it requires only one to start a quarrel.

This does not mean that it is useless to try to educate employees in the direction of courteous dealing. On the contrary, a great deal can be accomplished in this direction. But we might as well recognize that public utility executives have not yet succeeded in mastering this one phase of public relations—not completely, at any rate.

So much for what the utility owes to the public. However, there is another side to the question—what does the consumer owe to the utility company?

What the Consumer Owes the Utility

One big mistake, from a public relations standpoint, is to allow the consumers to procrastinate in the payment of their bills, in the fond belief that in some manner their good will is to be won by the delay. People don't generally feel as kindly toward those to whom they are indebted as they would were there no indebtedness. If a bill were any more pleasant to pay or easier to collect after it has become delinquent, there might be some argument in favor of a lax policy of collection. Some people want to pay their bills on presentation; some will take the allowable limit; and others just naturally go beyond the limit, regardless of whether it is a week or two months. The important point is to see that the methods of collection are courteous, the notice adequate and the credit terms reasonable, where circumstances justify the consideration of credit.

Having done all that can reasonably be expected to merit public approval, the next step is to make sure that the public knows what you have done and are doing. The importance of this step will be more fully realized after reflection on the forces that stand to profit by stirring up enmity between the public utility companies and the public.

Attacks by the Press

The sensational press dearly loves a great service organization as a target for its attacks, both because of the size of the target and because the utility touches the lives of practically everybody in the community. Whenever circulation lags or untoward circumstance presents an opening, the yellow journalist jumps into the breach to fight the battles of the "dear people," who otherwise would never suspect that they had a battle to fight. The yellow politician is no less alert to serve his fellow citizens by battling the "trusts" wherever and whenever the limelight of publicity can be induced to focus upon his knightly figure, or can be diverted from him to beat upon some imaginary evil of the "octopus," if the shadows accord more with the character of his own actions. Whichever type of demagogue it may be, the point of importance to utility managers is that the temptation to try to turn public opinion against the corporations is always present. Personal gain and political power—these are the incentives that keep the self-seeking yellow curs of dema-

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The Diversity of Customer Demand

An analysis of controlling factors

C. S. Reed

H. L. Doherty Co., New York

THE generally accepted definition of Diversity Factor is the relation of the summation of all of the individual maximum demands of the customers to the maximum demand upon the plant. This can be subdivided as to groups of customers, sections of distribution system and the diversity of different classes of business as regards each class by itself or as among classes.

In the time available for preparation on this topic, I have been unable to locate any exact figures as to diversity factors other than those obtained from a small number of complaint meter charts. The following statements are based upon general rate studies and upon the figures of maximum daily send-out per customer of a large number of gas companies. While these do not yield specific figures as to diversity factors, they are of use in making comparisons.

Maximum Demand Factors

The maximum demand of a customer is affected by so many elements that the diversity question presents a new problem in almost every city. In our investigations we have found some of these elements to be

1. The price charged for gas.
2. The geographical location of the town.
3. The price of other fuels.
4. The size of the community served.
5. The type of rate structure.

The Price of Gas

The sales of gas in any city appear to be inversely proportional to the price per thousand cubic feet. Just as long as we continue to sell our products, gas and service, on inequitable straight meter rates, or rather as long as we continue to give our service away and try to make up for it by charging double or treble prices for gas, we can expect any increase in the price per thousand to be partially or entirely offset by a decrease in the sales per customer. The amount of equipment, ranges, etc., in a customer's home, while partially dependent upon the rate, is free of it to the extent that many customers want equipment installed even though they have little use for gas except as a convenience. We find, therefore, that the diversity factor increases with the rate.

Geographical Location

The use of manufactured gas per customer is much greater in the South than in the North. The average annual gas bill in Alabama and Mississippi is $50 or more while in Massachusetts it is only about $30. This is probably due partly to the fact that in the South we do not have the same type of customers, not being loaded with the large numbers of small apartment users. It is also due to the wasteful habits of the Southern negro and the cook who lights the gas fire as soon as she enters the kitchen so as to get the fire good and hot by the time she is ready to use it. A third reason for the decrease of gas bills in the North is the temperature drop. During cold weather a coal range is often used for heating the kitchen and cooking is done on the same range. Also the water is heated in a furnace coil instead of the gas water heater. These conditions do not affect the amount of equipment used by customers nearly as much as the sales and demands and so we find much higher diversity factors in the Northern towns.

Price of Other Fuels and Size of Community

The cost of coal and other fuels affects the sales of gas considerably, companies located near a source of cheap other fuel selling considerably less gas per customer, and, therefore, having a higher diversity factor.

The size of the community served affects the diversity factor directly through the increase in number of customers, especially small apartment users and the consequent spreading out of the load.

Rate Structure

The type of rate structure also affects the diversity factor in that straight meter rates, through their encouragement of low load factor business, tend to build up a high diversity factor. Service charge and three-part rates, through encouragement of load factor, cut down the diversity factor.

As a definite example, the average of the indidivual demands in Ottawa, Kansas, before the establishment of the three-part rate was about 100 cubic feet per customer. The maximum town border demand was 40 cubic feet per customer, giving us a diversity factor of 2.5. With the installation of limiting meters the average possible instantaneous demand became 55 cubic feet per customer and the town border demand became 37 cubic feet, thus making a diversity factor of only 1.5. Sales, however, increased from 50,000 cubic feet per customer to 80,000 cubic feet, increasing the load factor of the town as a whole from 16 to 25 per cent.

Of course, Ottawa uses natural gas but the illustration is applicable as demonstrating that a high diversity factor does not necessarily indicate a prosperous condition. It is also applicable as showing approximately what we can expect if a real house

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Standardization of Consumers' Meters

The factors involved and their importance

Donald McDonald

American Meter Company, New York

THE Congress of American Gas Associations was held in St. Louis in 1904. At that meeting I had the pleasure of presenting a paper covering certain phases of the measurement of gas. Modesty forbids more than the mere mention of the fact that reprints of that paper have been one of our ten best sellers. Having preserved a more or less discreet silence during the intervening years, it is again a pleasure, and under the circumstances a high privilege, to have the opportunity of presenting some further observations on a subject to which has been given some thirty-seven years of personal study.

Among the other interesting comments which President Abell made in regard to the several topics proposed for discussion at this Conference, he said that considerable thought and study had been given to the meter problem for the past several years. He is quite right, and there is some doubt whether the amount of thought and study given to this question for the past thirty years, and particularly in the past five years, has been generally understood and appreciated.

In his further comment, President Abell speaks of changing the type of meter to some other form, because the present form has been in use for such a length of time that possibly a change for the better could be made.

It has been said, and it was evidently not meant unkindly, that an adequate research program had not been conducted in regard to meters or the measurement of gas in the United States. It is about as difficult to prove this statement as it is to disprove it. It is often difficult to draw a definite line between the field where the application of study and endeavor may be termed pure research and that field where study is actuated by the insistent desire to attain perfection. This is especially true in a business devoted to the manufacture of devices necessarily as delicate as those used for measuring gas.

Displacement Method Only Exact One

Now there is a fundamental fact that must be taken into consideration, which is that there is only one exact method of measuring gas, and this is by displacement. Measurement by displacement means that a container or chamber, the cubical contents of which have been ascertained percisely, must be filled with gas and then emptied, and filled again. The first solution of the problem of measurement of gas by displacement was the metallic revolving wheel, sealed with water, and this method is still in use for small volumes on an experimental scale and in large volumes in station meters.

It is obviously unnecessary to discuss the change from the wet to the dry meter as a consumer's meter, except to say that the dry meter commended itself at once because of its greater convenience and low cost. The dry meter as originally conceived and in use today is practically a metallic measure, except that it has a flexible hinge providing the necessary motion to give displacement. The original mechanical principles of the dry meter proved to be so well adapted to the purpose that they have never been superseded. They have been highly improved upon through study and research, and by that insistent desire, already mentioned, to attain perfection. There are, however, certain limitations which possibly might be mentioned briefly, and which must always be taken into consideration.

Container of Case Dimensions

There are the acceptable dimensions of the container of case. Use and convenience have determined these dimensions to a certain extent, as, for instance, what is known as a 5 lt. or 5 meter, has been standardized in general as to height, depth and distance from center to center of the connections. The problem thus became one of utilizing to the greatest advantage the cubical contents of a container of generally acceptable size. After some variation in the earlier years the 5 lt. was gradually standardized at 6 revolutions of the crank to one cubic foot. Following this came the question of how many revolutions of the crank per hour would result in a minimum of wear, with a consequent maximum of accuracy over a selected period of years.

An indication of the progress toward perfection is found in the tremendous increase in the number of revolutions per hour without loss of continued accuracy. The first 5 lt. meters were rated at 30 cubic feet per hour, or 150 revolutions at an undetermined differential. By 1890 the rated capacity had increased to 90 feet, or 540 revolutions per hour. At or about this time the present standard differential of ½-inch water column was accepted and established. Today meters of this size have practically a standard rated capacity of 900 revolutions, or 150 cubic feet per hour. The larger sizes of consumers' meters have increased in capacity proportionately, but the more limited use of these sizes, especially the very large meters, has not provided the same incentive toward standard dimensions and capacity, although in the 10 lt. and other intermediate sizes there is a most encouraging advancement in this direction.

Controlling Factors

The volume of gas that will pass through a given orifice in a given time depends on other factors than the diameter of the orifice. When this problem is complicated by inserting between the inlet and the outlet orifice the moving mechanism of a measuring device, the solution becomes increasingly and proportionately more difficult. To those whose first thought is that of less initial cost per foot measured, the problem seems more simple, while, on the other hand, the manufacturer of meters, whose final success must rest on the continued accuracy of the measuring device, clings to the slow moving and carefully governed meter, believing that the factor of accuracy of measurement far outweighs the factor of a reduction in the initial cost.

It is perhaps too much to say that the correct measurement of gas by consumers' meters has been revolutionized in the past thirty years. Revolution used in this sense is rather a large word, but there has been a constant process of evolution which has amounted to almost the same thing. President Abell rather overstates the time when he says that the present type of meter has been in use for a century. Eighty years would be more nearly correct.

If eighty is correct, and it is if we count from the practical adoption of the Glover principle, the first fifty years were not particularly progressive in point of increase in capacity. Gas was used principally for illumination, and the 3 lt. meter, with its limited capacity at first of 18 feet, and by 1890 of possibly 60 feet per hour, was sufficient to care for the average consumer. With the increased and increasing use of gas for cooking and heating, these small meters have been gradually discarded. Practically none is made in the United States today. Those gas companies which have not adopted a systematic policy of the condemnation of this size meter should do so.

On the average, all of the 3 lt. meters in the United States are old. Segregation of tests as the meters come in from service and an analysis of these tests will demonstrate that the percentage of meters that do not pass gas, that pass gas and don't register, and slow meters, is far higher in the 3 lts. than it is in the more modern 5 lt. meters.

The Glover Meter

As a type, however, the Glover meter has persisted, and the reason for this is that it is correct in principle. Eighty years of constant use has only served to emphasize this fact. That it is a fact does not mean that the point of capacity has been overlooked. On the contrary, it does mean that during the past thirty years every effort has been made through research and experiment to improve this wonderful piece of mechanism. Speaking most seriously, whatever may be the history of the past, the use of gas today and the amazing prospect of the future, coupled with the urgent demand for strict accountability, all combine to form a call to the manufacturer to produce a meter that has as high a factor of capacity as is compatible with the original purpose.

In the meantime much has been done toward the standardization of parts. The threads and dimensions of screws, caps and swivels have been standardized for years. It is interesting to note in passing that the practice in this respect is far ahead of some similar lines, as, for instance, water meters, the manufacturers of which are now making an effort to standardize certain connections such as swivels, regarding which there has existed no disagreement.

The Diaphragm Disc

The diameter of the diaphragm disc and of the diaphragm itself, the practice of mounting the diaphragm so that it shall not touch at the bottom and sides, the construction of the case, including the pan formed bottom, with a view of eliminating leakage and seepage, the use of uniform fittings such as stuffing boxes and caps, cranks and crank tangents, including the diameter of the various moving parts, the construction of the index or registering clocks, and particularly the elimination of certain unnecessary sizes of meters, they not only were distinct improvements, but they have all been moves toward standardization.

A standard, however, will always be an equation of several factors, and, speaking not too seriously, standards are an elusive thing. Only a few years ago the standard of value was two drinks for a quarter. Today the 25c piece remains as a factor, but the drinks have vanished to a place where it is debatable if even one drink can be obtained for two quarters. It is not a very good illustration, but it serves in a sense to demonstrate that the standards of today may not be the standards of tomorrow, and in making changes, especially in gas meters, which are produced originally by the manufacturer, and more and more commonly repaired after a term of service by the gas company, changes must be long considered and carefully studied before being put into effect.

Co-operation

A most encouraging feature in the movement toward standardization of gas meters generally is the increasing tendency toward co-operation by the meter manufacturer and the engineer in charge of distribution, especially in the larger gas undertakings. The distribution engineer or manager has often in the past pointed with pride to the average correctness of his consumers' meters, and especially where meters have proved to be correct after an unusual term of service. It is truly a remarkable fact that gas meters are so generally correct. But the manufacturer has insistently pointed out that in this attitude there is great economical danger. Longevity is something always worth striving for. Overload brings quick returns on capital investment, but with longevity and overload the percentage of pass gas

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Group Insurance

Its importance to the utility company

J. G. Reese

Insurance Supervisor, Consolidated Gas, Electric Light & Power Co., Baltimore, and Chairman A. G. A. Insurance Committee

UTILITIES today are showing more and more interest in the welfare of their employees, and one method of doing this is through Group Life Insurance. This type of insurance is but slightly over ten years old, and is the outgrowth of the desire on the part of the employers to aid the families of employees in order that they may not be absolutely dependent upon the charity of fellow workmen or neighbors.

Group Life Insurance is that form of life insurance covering not less than fifty employees, with or without medical examination, written under a policy issued to the employer, the premium on which is to be paid by the employer or by the employer and employees jointly and insuring only all of his employees, or all of any class or classes thereof determined by conditions pertaining to the employment. The amount of insurance is based upon some plan which will preclude individual selection, for the benefit of persons other than the employer. However, when the premium is to be paid by the employer and employees jointly, and the benefits of the policy are offered to all eligible employees, not less than 75 per cent of such employees may be so insured.

Deciding the Amount of Insurance

Various plans of deciding upon the amounts of insurance to be carried on the individual lives of the employees have been used. One plan is to have an equal amount of insurance on all lives in the group, such as $1,000 insurance on the office boy, as well as on the general manager. Another plan is to place a certain amount of insurance on junior employees and a larger amount of insurance on executive heads, the limit in this regard being that no risk on one life can be more than two and one-half times the average of the group. Another plan is to place a certain amount of insurance upon a person after he has been employed, say, at six months, and goes on increasing up to a maximum over a period of years. Another plan is to place the amount of insurance as a certain percentage of the yearly salary paid to the employee.

Fundamentals Involved

Two fundamental principles are involved in any one of these plans: First, the rewarding of value to the company of the employee's service, such as placing a larger amount of insurance upon senior employees, or having the insurance a function of the salary. The other fundamental principle is, the rewarding of length of service. Any company in deciding upon the type of insurance that it will carry should carefully consider these two fundamental principles and decide which should receive the greatest weight. It should not be lost sight of that it is very much to the interest of the company to put forward an incentive for long service.

Not a Gratuity

If it is decided to put in Group Insurance, one most important point is to realize that this is not philanthropy nor a gratuity, but is a co-operative action of the employer and employee working towards the mutual benefit of both concerned. Nothing will interfere more with the good relations between employer and employee than the feeling on the part of both that a gratuity is being given. Another point that cannot be too strongly emphasized is that when the insurance is to be put into effect the matter should be most carefully explained to the employees from every angle so that they may understand their benefits and responsibilities under the plan. Great harm has been done in the past in the lack of understanding on the part of the employees and often upon the supervisory force in not thoroughly understanding the responsibilities and benefits accruing.

Advantages Derived

The advantages derived from this act on the part of the employer are claimed to be as follows:

To attract a higher grade of employee, to make the family more interested in the company, to tend towards improvement of morale and efficiency of the employee, and to reduce the labor turnover.

To the employee—

Provides ease of mind when employee knows some provision is made for his family after his death. Frequently men overlook the necessity of obtaining insurance until too late, and physical conditions cause insurance to be refunded, or premiums are rated up so that the cost is prohibitive. Under the group plan no medical examination is necessary.

Faithful service rewarded when amount of insurance given by employer is based on length of employment. Of two men working at the same occupation, at the same rate of pay, the man of longer service feels he deserves more consideration. Group insurance rewards this loyalty.

Under the plan by which the employee contributes, he may obtain about four or six times as much insurance for about the same premium as he could obtain under the weekly industrial individual method.

Many employers are now carrying this form of

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Home Service

What the gas companies are doing along this line

James P. Hanlan

Public Service Electric & Gas Co., Newark, N. J., and Chairman A. S. A. Commercial Section

THERE is so much to say on this subject that I thought the best way to give you a picture of home service would be to tell you what a number of gas companies are doing. The records of the Home Service Committee of the American Gas Association show that there are at least thirty-five gas companies operating home service departments.

The Peoples Gas Light and Coke Company is conducting one of the best home service departments. Mr. T. V. Purcell, vice-president of that company, points out what home service means to a gas company when he says: "There can be no doubt that increased home cooking activities must result in a corresponding increase in gas consumption. And there certainly can be no question as to the value of 'home service' as a great gainer of general goodwill towards the company."

Mr. Paul Warren, assistant to Mr. Purcell, gives us some very interesting information about the home service activities.

The Peoples Gas Light & Coke Co.'s Department

"The home service department was organized in March, 1922, for the purpose of increasing the consumption on domestic meters. Our plan was to awaken interest in home cooking by means of lecture demonstrations, advertisements, and talks before women's clubs and church organizations, and endeavor to bring the women back to the homes in the way they were before the war.

"Our present staff has grown until we now have twenty people in the home service department, including our office staff. We are giving lecture demonstrations every day at our main office and at five neighborhood stores. We also broadcast a food talk every day from Station KYW, and on Wednesday evenings we give a radio talk on entertaining and party plans.

Value of the Department

"I think I am safe in saying that the management of this company is thoroughly sold on home service work, not only from the standpoint of increasing consumption, but from the standpoint of good-will. In our Year Book for 1923, in commenting on the work done by this department, it was stated that 'the growth of the department has been beyond expectation, and is an important factor in promoting public good-will.' In the Year Book for 1924 will be found the following statement: 'The daily food talks by radio have become a feature of Chicago life.' Thousands of women who have not time to attend the cooking class, tune in with Station KYW every day for Mrs. Peterson's now famous radio talks. As evidence of the popularity of this service, three thousand women and children attended the 'Children's Radio Christmas Party' last December."

At New Haven

The home service department of New Haven Gas Light Company in 1924 gave sixty-nine cooking classes to a crowded audience at each lesson. It made 14,149 instruction calls in the homes.

I was in New Haven a few months ago and found the arts and crafts class of the New Haven Women's Club making good use of the home service auditorium. This is only one of thirty-four clubs and organizations of New Haven utilizing the New Haven Gas Light Company's home economics service during 1924.

East Ohio Gas Company's Home Service

The home service department of the East Ohio Gas Company gave 23,867 school students an educational lecture on the manufacture of gas and proper installation of appliances. Eighteen thousand students saw a motion picture on the production of gas. These lectures were given in the chemistry, physics, general science and domestic science classes of schools. This company also does demonstration and club work, but its school work is so outstanding I wished to bring it especially to your attention—for the school student of today is the homemaker of tomorrow.

In Brooklyn, the City of Homes

Miss Dillon, vice-president of the Brooklyn Borough Gas Company, gives the credit to the home economics department of that company of humanizing the relations of this company with its customers. But, I would like to comment on that statement by saying—knowing Miss Dillon as I do—that much of the credit for the splendid relations existing between the gas company at Coney Island and its patrons belongs to Miss Dillon herself.

A weekly cooking class with 190 women enrolled is only one of the means the Brooklyn Borough Gas Company use to accomplish this harmonious relationship. At the end of the first term the enrollment of this class was doubled.

This proves women are interested in cooking and a gas company cannot afford to miss any opportunity to teach the best way to cook with gas.

The Providence Gas Company

Let me read to you a letter from Mr. F. G. Freeman, vice-president, Providence Gas Company:

"I do look on a home economics department as being of value to the utility but I would rather put it that such a department is value to the community, because the utility is a part of the community. The consumers in the end pay the cost of a home economics department. Individually they could not afford such a service, but collectively, through their utility, they can well afford the service because the cost of it to each one is only a nominal amount whereas its value to them cannot be over-estimated."

On the Pacific Coast

The Pacific Gas Coast Association also is devoting much time and thought to this question of home service. The report made by the Home Service Committee of the Pacific Gas Coast Association in August, 1924, gave a most interesting fund of ideas.

This committee has included in its outline for home service work a very complete program and says in part that "home service in the opinion of the committee is defined as a service rendered to domestic consumers in order that they may secure satisfactory results in the use of gas burning appliances." It is one of the most complete programs I have ever seen as to the character of gas service that local customers should have and ways and means of bringing this about.

In the Public Service Co. of N. J.

Mr. P. S. Young, vice-president of the Public Service Corporation of New Jersey, an enthusiast on home service work, says:

"The splendid accomplishments of this bureau have been of great value to this company.

"The work it is doing provides one of the very best points of contact with our consumers that we have and its results are far-reaching."

Commenting further on the work of the home service department of the Public Service Electric & Gas Co. in 1924: It gave lecture demonstrations before sixty-two women's organizations, reaching 6,882 women, many of whom could not be approached through any other channels. The most exclusive clubs are just as eager to get information on home service as those clubs not considered in the exclusive class. It also made many home instruction calls and showed women what really could be done with gas, gave talks before many schools, and held seventy-two cooking demonstrations on the sales floor of its offices.

The Radio Class

The home service committee, realizing the possibilities for broadcasting home service topics, are considering ways and means of helping gas companies which may consider broadcasting but have not the necessary information on home service at their command, such as the Home Service Committee has.

The Women Are Interested

Women are no longer willing to devote the best part of the day to the kitchen and their cooking problems. The best housekeepers of today want their kitchens where they are easy not to work in. The oven heat regulator gas range has brought them a new freedom and a home service department should

(Continued on page 131)

An Effective Range Display
(Note the Concentration of Interest)

THE DIVERSITY OF CUSTOMER DEMAND

(Continued from page 124)

heating load is taken on by the manufactured gas industry.

The figures obtained from the complaint meter charts previously mentioned were accompanied by house survey records and showed the following as applicable to some domestic customers of Denver, Colorado. All of the figures are on a per customer basis.

Connected load, cu. ft. per hour	165
Instantaneous demand, cu. ft. per hour	83
Consumption, cu. ft. per year	30,000
Load factor	2%
Demand factor	4%

The average hourly plant demand was 17 cubic feet per customer and the instantaneous demand was estimated at 20 cubic feet. This makes a plant demand factor of 20 per cent, based on sales. It also makes a diversity factor of about 4, based on instantaneous demand.

WHAT ARE PUBLIC RELATIONS?

(Continued from page 123)

goguery ever ready to snap at the heels of the one economic agency that has helped more than any other to develop and prosper the community it serves.

The Antidote

In the presence of a poison, administer an antidote. Dispel darkness with light; dissipate lies with facts, and clear away misunderstanding by the substitution of the utility's story, simply and interestingly told. Take full advantage of the lull before the story—or rather between storms—to let the public know just what you are doing, and why. Your advertising and public pronouncements given when the organization is not under fire will have the clear advantage of not having to overcome the hostile propaganda of the professional enemies of all utility corporations.

Just what means to employ and what media to use are details of the job which each must settle according to his own needs. Two things remember: Keep everlastingly at it, and stick to the truth. Then leave your case in the hands of a friendly public, for the public will be your jury in the long run, friendly or otherwise.

STANDARDIZATION OF CUSTOMERS' METERS

(Continued from page 126)

and don't register meters becomes increasingly greater. Don't register means non-payment for gas sold. It means more than this. It spells doubt as to where the leakage exists.

Toward a solution of this problem the manufacturer proposes today a careful study and analysis on the part of the distribution engineer of the results of meters tested. Such study points inevitably to certain cardinal factors. These are the reduction of expense by not removing meters unnecessarily. The establishment of a fixed period of testing and repair, and the discard of antiquated and wornout equipment. These factors can only be ascertained by systematic study and analysis of meters brought in from service. Herein lies the answer not only of better service, of better public relations, of a more secure return on investment, but of standardization, and of what use is the establishment of a meter standard if it does not bring peace of mind, satisfied customers and a reasonable profit.

GROUP INSURANCE

(Continued from page 127)

insurance for their employees, not only in the utility fields, but also in other industries.

Although the benefits claimed for Group Insurance are many, the question of just how far the employer should go in dealing with the employee outside of his regular duties is attracting much attention. Does the employee desire this paternal attitude? The thought has developed that perhaps the employer is going too far afield, and many welfare activities are not received as well as they should be. These matters are for the management of each company to determine for itself, and much consideration should be given to this thought before placing Group Insurance.

GAS ASSOCIATION MAKES UNIVERSITY FINE GIFT

First hand knowledge of modern gas burning equipment and the use of manufactured gas in industry is to be had by students of the University of Illinois, as a result of a gift of equipment just announced by President John G. Learned, of the Illinois Gas Association, in behalf of that organization.

The equipment consists of a gas-fired steam boiler for the chemistry department, where steam is generated automatically for use in various chemical operations; a battery of four assaying furnaces, where the students are able to determine the amount of gold and silver in various ore samples sent the university for test; a special furnace for melting various kinds of glass and enamels for the ceramic department, as well as a cylindrical high temperature furnace which will melt fire brick or any other substance up to 3,500 degrees Fahrenheit; four furnaces for the forge shop, one being a lead hardening furnace for hardening steel in molten lead, another for heating steel to forging temperatures, a third is an oven furnace for treating ordinary steels up to 1,800 degrees Fahrenheit and the fourth is a high-speed, heat-treating furnace for heat treating steels up to 2,300 degrees Fahrenheit, and in the foundry, a gas-fired crucible furnace for melting brass, aluminum and other alloys and also a large core oven for baking cores with gas, is also being provided.

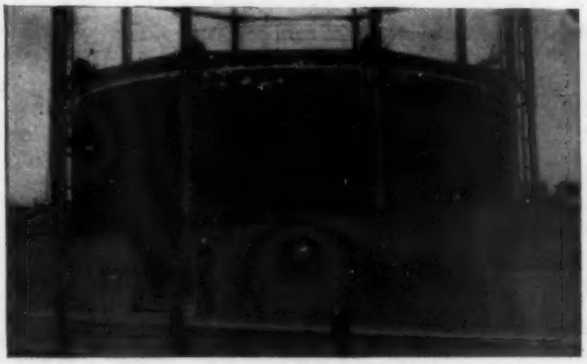
PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

Repairing a Gas Holder by Metallization

IN Copenhagen, Denmark, a gas holder was recently repaired by metallization, according to Gasteknikeren, 1924, number 9, a method which is of considerable interest to the gas man.

The gas holder itself is thirty years old and has a capacity of six thousand cubic meters. One of the seams of the gas holder was eaten away to such an extent that it was not possible to mend the holder any further and hence it was thought best to metallize it. One of the conditions of the repair job was that it had to be carried out while regular operations were going on.

It was first necessary to clean the corroded spots by means of a sand blast and a pipe about two inches



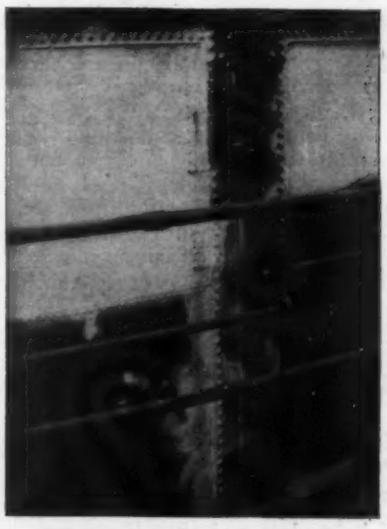
The Holder

in diameter was placed around the entire holder and compressed air was blown from that pipe through suitable openings to the sand blast machine. The holes that were made in the shell of the holder by this blast of sand were filled up with wooden plugs to prevent the gas from escaping. These plugs were as thick as three centimeters. The wooden plug was flattened down and then a coating of zinc was placed over it.

The burner of the metal spraying machine was fed with compressed gas and oxygen. Zinc and tin wire, about a few millimeters thick, were used in the process. The wire was fed to the flame at a constant rate by means of a small compressed motor in the spraying apparatus. The metal is melted in the heat of the flame and the molten metals was finely distributed by means of the blast of air. The zinc coating was about one-twentieth of a millimeter thick and this was then covered with a film of tin of two to three millimeters thickness in particularly weak spots and from four to five millimeters in thickness over the wooden plugs. The work progressed very rapidly and very excellent results were obtained.

Coal Testing by the X-Ray

AN instrument has been developed under the name of the "carboscope," which is used in the X-ray testing of coal. The object of this test is to determine the ash content of the coal, which, it is said, can be done with an accuracy which is commensurate with commercial practice. The principle on which the instrument operates is that the "pure" coal matter is comparatively transparent to X-rays, while the ashy or dirty ingredients are opaque and throw a shadow in the screen. The apparatus cannot give the investigator a complete picture of the character of the coal, the amount of volatile ingredients that it contains, etc., but as



Details of Repair Work

the heating value of the coal is directly related to its ash content, examination with this instrument will yield information of value. The instrument is used by comparing the radiographs of known coals containing definite amounts of ash with that of the coal under examination and a comparison can quickly be made and the percentage of ash in the unknown coal may be determined with ease and with satisfactory accuracy.—Gas Journal.

Gas from Oil Cracking

CONSIDERABLE gas is evolved in the cracking process, wherein petroleum is cracked to produce gasoline. Certain investigations have been made on the properties and the quality of this gas, according to an article recently published in the Industrial and Engineering Chemistry, volume 17, 1925, page 32.

HOME SERVICE

(Continued from page 129)

be in every gas company to give them correct information on the proper use of this modern gas range as well as information on any other subject related to home cooking. The gas company should be the authority on the latest and best ways to cook with gas, since one of America's problems is to make home life more attractive. Good cooking and the pride of accomplishment will do as much to promote better living conditions in homes as any other agency. Happily the gas company occupies a preferred position.

I wish I had the ability to paint the word picture that is in my mind. I believe I could convince every operator or manager of a gas property of the value home service would be to his property in making better homes, more friends, more money.

I could go on, but time does not permit. Let me say that gas companies cannot afford to stay out of this great movement for Better Living.

Other industries, organizations, schools, colleges, women's magazines, our daily papers, the movements each year for "Better Homes," "Own Your Own Home," etc., are all a part of a great educational program for better living conditions, better homes, better communities.

This industry, standing as it does, as a public and civic benefactor in its community, should be the LEADER of this great movement, not a follower.

And, as a LEADER of such an ideal, it will bring back to itself success and profit in great measure.

COST ANALYSIS AND RATE MAKING

(Continued from page 120)

Net minimum monthly bill: $0.08 per cu. ft. of hourly maximum demand.

It will be understood that these two rate forms are not given as ultimately desirable forms. They are given merely to demonstrate how much a simple adjustment will affect the gross revenue of a company. The indicated increase is derived solely from the one item in the retail rate of $1 for the first 300 cu. ft. of monthly consumption. In other words, the item of $1 per month assures a part payment at least from every consumer of the customer component of cost. The wholesale rate quoted is not recommended in any way as a desirable rate form for wholesale service, as it is only a temporary expedient for the utility referred to here, and is given only to complete the picture of the two rates suggested as substitutes for the one rate now in effect and which is objectionable from every viewpoint.

The results shown from the cost analysis on this particular property are not widely dissimilar from those found on many other properties. Gas rates which do not provide in any way for the customer and demand components of cost have been in common use for so long that it is difficult to change. It is a matter of educating the regulating authorities and then the consumers. It may be an up-hill fight until the majority of gas utilities have adopted rates approximating the cost of service to the several classes and then the balance of the companies will have relatively no trouble in getting cost rates established. Each company that succeeds in the establishment of cost rates will, therefore, have contributed a real service to the industry as a whole.

HOUSE PIPING

(Continued from page 118)

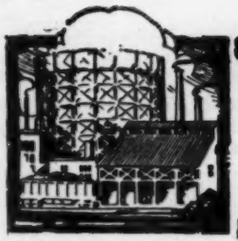
It seems to me that our one problem is to effectually break down the barrier of misunderstanding and apprehension that the average professional man has for the gas company and its recommendations. Your suggestions will materially benefit the industry as a whole and will properly sell the unbeliever.

Standardization of Methods for Running Piping

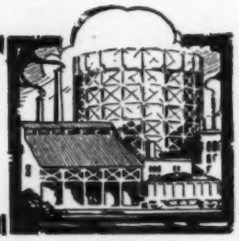
Lastly, but not in the least, I believe an important topic for discussion is standardization of methods for running house piping, so that we can insure the customer uninterrupted service throughout all seasons of the year. I am now speaking essentially of locations and sizes of building risers and meters, so that the customer is not annoyed at freeze-ups, traps in the gas lines, etc. No result, gentlemen, is more accurate than the least accurate factor. Consequently, even though we have succeeded in selling our customer with the idea of adequate piping and openings, if our designs are such that the customer cannot enjoy uninterrupted service, then we have failed just as completely as if the piping and the openings were not there. To me, a standardization of methods of laying services and risers, spotting openings and meters, would be of great benefit to any integral organization in the gas industry.

I have, of course, not completed the list of topics for discussion; all of you, possibly, have something of importance which will materially affect our future operations along this general subject. I shall be pleased to open this discussion by having you gentlemen, first of all, discuss the project as a whole, as outlined in my preliminary words.

All articles published in this issue were delivered at the Mid-Year Conference of the American Gas Association at San Francisco, Calif., Jan. 29-30, 1925.



NEWS OF THE GAS INDUSTRY



Calumet Gas Customer Ownership Campaign Completed

Sale of the 7 per cent preferred stock of the Calumet Gas and Electric Company through the customer-ownership plan has closed, according to an announcement made recently. Fifteen thousand shares of this stock, with a par value of $1,500,000, have been sold to customers, employees and other investors in less than three months, according to Charles W. Chase, vice-president of the company, who expressed himself as being highly pleased with the results of the company's first sale of its securities to the public.

The company today has 1,442 paid-up stockholders and 2,260 others are buying the stock on the monthly savings plan. The stock is widely distributed, the average number of shares held being only four per stockholder.

Seventy-seven per cent of the employees of the company invested in the securities, and in Gary, where the general offices of the company are located, 98.4 per cent of the employees bought stock.

Sale of these securities began November 1, 1924, shortly after the Calumet Gas and Electric Company bought the properties of fourteen other public utilities in Northern Indiana and consolidated them into one company. In selling the company's securities to its customers and employees the management followed the customer and employee ownership plan which has proved so successful in other companies under the management of Samuel Insull and his associates, and the other public utility companies throughout the country.

The sale was conducted by employees of the company, who were divided into stock selling teams. There were many competitive contests between these teams and the employees in the various cities served by the company.

Purchasers of this preferred stock have already received one dividend, the first quarterly dividend having been paid on December 17, 1924, and the next quarterly dividend is payable March 17, 1925.

Fire Sweeps Gas Plant

Albany, N. Y.—Fire which swept the partly built $3,500,000 plant of the Hudson Valley Coke and Production Company at South Troy Saturday night caused $200,000 damage.

A coke oven unit of the plant, with fifty-five batteries and stoves, nearing completion, and a wooden superstructure built to permit workmen to carry on work during winter months, were wrecked. The fire will set back the early completion of the plant, which is to be one of the largest wholesale gas production plants in the country.

Cantilever Wrench Corporation Organized

The Cantilever Wrench Corporation, with offices and factory at 354 Mulberry street, Newark, N. J., has taken over the assets and liabilities of the Cantilever Wrench Company, Inc., manufacturers of the Cantilever reversible and ratchet chain pipe wrenches.

The officers of the new company are as follows: W. E. Cooke, president and treasurer; A. B. Cozzens, vice-president and general manager; F. J. Carnelli, secretary.

The new company will continue to manufacture the Cantilever wrench and is rapidly perfecting a national sales organization to market its product.

John W. Golden

In the death of John W. Golden this company loses one who devoted his life to the strengthening and developing of the company, with which he became associated in 1887.

During all the years that Mr. Golden was associated with the company he gave unselfishly of his time and strength in the building up of the business. Mr. Golden was always in the forefront in the advocacy of plans for the development of Savannah, not only because of his local pride in the development of Savannah, but also because of his realization that the growth of the city meant the growth of the company.

Mr. Golden was a man of pleasing personality and generous nature and his hospitality to his many friends on the occasions of their visits to Savannah will long be remembered by them.

Thereupon the following was unanimously adopted:

Resolved, That we, the associates of John W. Golden on this board, as an expression of our sorrow at his death and in appreciation of his long and useful services to the company, adopt the testimonial which has been offered and order that the same be spread upon the minutes of this meeting and that a copy be sent to his family.

Savannah Gas Company.

Mobile Electric Company Sold to Alabama Power Company

H. M. Byllesby & Co. announce that Standard Gas and Electric Company has disposed of its holdings in the Mobile Electric Company to interests identified with the Alabama Power Company. This action was taken in order to permit the Mobile Electric Company to become part of a comprehensive transmission line and hydro-electric development pro-

gram now being worked out. Electricity at Mobile has heretofore been developed by steam.

It is understood that Theodore K. Jackson, president of the Mobile Electric Company, and for many years connected with the Byllesby organization, will remain in charge of the property for the new owners.

Newspaper Compliments Oklahoma Gas & Electric Company

While Oklahoma City was in the grip of a snowstorm recently, the Oklahoma Gas and Electric Company succeeded in maintaining service in the face of tremendous odds. The Oklahoma City Times, complimenting the company and its employees on the splendid work, quoted J. F. Owens, vice-president and general manager of the Oklahoma Gas and Electric Company, as follows:

"We do not deserve any special credit for efforts we put forth in the interest of service to the public. It is our duty to maintain service and to extend ourselves to the limit of human endurance. But to the individuals—men, and women, too—in our organization, who suffer great hardships uncomplainingly and give no thought to personal comfort and safety, go my sincere congratulations and compliments; and I am sure that if the general public knew to what extent the loyalty to public and service carried them, there would be general appreciation of their services."

A Correction

It was recently reported in these columns that the Tri City Gas Co. of Gadsen, Ala., had been sold.

We have been advised by President Thomas Higgins of that company that this statement is incorrect and that the property has not changed hands.

Contracts Awarded

The U. G. I. Contracting Company, of Philadelphia, has received a contract from Harrisburg (Pa.) Gas Company to furnish and erect a 6,000,000 cu. ft. waterless storage holder, including the necessary foundation and connections. The installation of this holder will, no doubt, excite considerable interest in the industry.

The U. G. I. Contracting Company, of Philadelphia, has received a contract from the Allentown-Bethlehem Gas Company to furnish and erect at the coke oven plant of the Bethlehem Steel Company two 10 ft. 6 in. U. G. I. Producers, together with the necessary blowing plant and appurtenances. There will also be installed two U. G. I. vertical waste heat boilers, with connections to the producers. In addition, there will be installed an 8 ft. U. G. I. scrubber, 50 ft. high, and a battery of gas exhausters with necessary connections.

It is expected that the installation of this equipment will greatly increase the efficiency of the above plant.

In connection with the Parker-Russell Mining & Mfg. Company, of St. Louis, the U. G. I. Contracting Company is furnishing and installing at the plant of the Consumers Power Company, in Kalamazoo, Mich., a 10 ft. 6 in. diameter U. G. I. producer plant, complete with all accessories, also a 14 ft. U. G. I. dust arrester and flue connections, also a turbine blower plant in duplicate for blasting the producer, each blower having a capacity of 3,000 cu. ft. of air per minute. This producer plant will furnish the gas for heating the carbonizing plant which Parker-Russell is installing.

Conshohocken to Get Big Gas Plant

West Conshohocken, Pa.—The Counties Gas and Electric Company will erect a large modern plant in this borough, with a daily capacity of more than 10,000,000 cubic feet. This will serve the entire district of the company, comprising Norristown, Conshohocken, Bridgeport, this borough, and the main line from Overbrook to Paoli and West Chester.

General Manager Herbert Ganser, of the company, states that the new plant will be built for the latest and most efficient method of manufacture of gas. The plant will be what is known as a carburetted water gas plant and will be built in units. The full capacity is to be 10,000,000 cubic feet of gas per day.

Work on the erection of the new plant will be started early next month, and the first unit completed by July. The gas is to be distributed at a low pressure. The company owns a large tract of land along the river road in this borough, and has already built two large gas holders there, one of them being one of the largest holders in this country.

Artificial Gas Users Increase

Indianapolis, Ind.—One-third of the people in Indiana are now using artificial gas, according to E. J. Burke, secretary of the Indiana Gas Association. A recent survey, to measure the development of the gas industry, shows that 312 Hoosiers out of every thousand are now using artificial gas for cooking, heating or lighting.

"Indiana ranks ninth, among states with regard to the number of gas consumers," said Burke. "Almost a million Indiana people are making some use of artificial gas. This is an unusually large number considering the fact that in many of the smaller communities the people are still able to obtain enough natural gas to supply their cooking needs."

E. W. Barnwell Heads Savannah Gas Employees Association

Savannah, Ga.—E. W. Barnwell was unanimously elected president of the employees' organization of the Savannah Gas Company at a meeting in the offices of the company.

The other officers nominated by the committee composed of C. R. Linzer, Harry W. Broyles and W. S. Hankins, and unanimously elected, are: Vice-president, F. L. Linzer; board of directors, Miss Mary Murphy, D. M. Levan, William Bischoff, J. T. Dawson and C. J. Hardage. At a meeting of the officers and the board of directors, Miss Nelly Keller was appointed secretary-treasurer.

Before the business meeting a light dinner was served to the employees by Mrs. Pauline Smith, demonstrator, and some of the young women employees. D. H. Levan was temporary chairman of the meeting.